

the brand just after the middle of the fore-border of the wing ; this brand is long and linear, thinned away at either end, terminating rather abruptly at the tip, and forming a very obtuse angle on the hind-border whence springs the fourth vein ; the first and second branch-veins are indistinct and near together at the base, but widely apart at their tips ; the latter is slightly waved ; the third is obsolete till its fork which it sends forth at one-third of its length, and it has no second fork ; the fourth vein is nearly straight.

Length of the body  $1-1\frac{1}{2}$  line ; of the wings 3 lines.

1st var. The feelers are dull green ; the tips of the joints are brown : the eyes are black : the mouth is pale green with a brown tip : the legs are pale green with dark brown tips : the wing-brands are pale green. While the pupa is young, its colour is yellowish green with a green abdomen ; when it grows older it has four rows of black spots along the abdomen, and its rudimentary wings are pale yellow.

This species feeds on *Pinus sylvestris*, the Scotch pine, from the spring to the autumn.

The species of this group differ much from each other in shape, and as I have not yet noticed all the forms in which they appear, I shall probably mention them again in a future part of these descriptions. Some of the species are solitary, others herd together ; *Aphis saligna*, *Pinicola*, *Laricis*, and *Roboris*, occur in thick clusters during the autumn, and the three last species are then attended by large swarms of *Scatopse picea*, among which *S. flavicollis* is sometimes found : these flies feed on the honey-dew, an appropriate occasion for their pairing which accordingly occurs at this time of the year.

[To be continued.]

XI.—On the Insects of Jamaica. By PHILIP HENRY GOSSE.

[Continued from vol. i. p. 352.]

106. *Clytus angulatus*. Taken at Savanna le mer, early in June.

107. *Eriphus terminalis*. Common on the Hampstead Road in June.

108. *Eriphus* (?) *humeralis*. Very numerous in the same locality and season as the preceding.

109. *Ptychodes trilineatus*. Some half-dozen specimens of this handsome beetle were procured on the Hampstead Road and in the Cotta Wood at Content during the last week in June.

110. *Tetraopes* (sp. nov.). Not uncommon on bushes beside the Hampstead Road in May and June.

111, 112. *Tetraopes*. Two other species.

113. *Odontata* (sp. near *bicolor*).

114. *Anoplitis sanguinicollis*? Two specimens taken on Bluefields Mountain in March. I met with it also near Alligator Pond in December.

115. *Imatidium* (sp. nov.). This little *Cassida*, exquisitely beautiful when alive, from the peculiar softness and richness of its purple hue, was rather numerous in the Cotta Wood, and the lower part of the Hampstead Road, near Content, in June. It occurred on the leaves of small trees, a little within the woods rather than at their edges, usually about eight or ten feet from the ground. I think we took one or two individuals also on Bluefields Mountain.

116. *Coptocycla guttata*?

117. *Coptocycla* (sp. near *gemmea*). Both of these small species were sufficiently common on the Hampstead Road and in the Cotta Wood in June. The brilliant iridescent hues that play over the glassy surfaces of these beetles during life vanish after death; but I have been told (though I have not been able to realize this by experiment) that these fleeting colours may be temporarily restored by plunging the dried specimens into hot water.

118. *Ædionychis æquinotialis*? Taken at Bluefields about the end of December.

119. *Cerotoma* (sp. nov.).

120. *Galeruca Domingensis*. This little blue beetle occurred almost exclusively at the spot where the road called the Short Cut crosses the Paradise river, between Bluefields and Savanna le mar. Here however in March and April it was very numerous, hundreds thronging the air in flight a few yards above the earth, on the western bank, which is covered with a soft thymy herbage. The pretty little *Melitæa*, which Mr. Doubleday has named *M. Proclea*, was also very abundant in the same very limited spot at the same season.

121, 122. *Galeruca*. Two other species.

123. *Orchestris* (sp. nov.).

124. *Colaspis* (sp. near *viridipennis*). This pretty little beetle was very abundant upon the Hampstead Road in June. It principally occurred on the broad spinous leaves of a large herbaceous species of *Solanum*, common in spots which had been once reclaimed from the forest, but had been allowed to run to waste. Scores of these little green insects were seen on these plants, many of them *in copula*. When alarmed, they are apt to draw in their feet and drop to the ground.

125, 126. *Colaspis*. Two other species, both from the Hampstead Road.

127 to 137. *Cryptocephalus*. Ten species. All from the last-named locality.

138 to 140. *Coccinella*. Three species, all small; principally from Bluefields and the vicinity.

141. *Brachiacantha* (sp. nov.?).

142. *Exoplectra* (sp. nov.). Taken at Alligator Pond about the middle of December.

Passing by, at least for the present, the other Orders, I proceed to the Lepidoptera.

#### LEPIDOPTERA.

1. *Papilio Marcellinus* (Doub.), *P. Protesilaus* (Drury). This butterfly occurred from the middle of April onward, through the summer. It was nowhere common, but Sabito Bottom was the chief locality where I observed it. Here we might sometimes see half-a-dozen in the course of a morning, unless the same individual would appear over again, flying rather low, with an irregular dancing motion, along the shrubs and small trees at the edges of woods. It is sufficiently rapid to be caught with difficulty, particularly when alarmed, and hence pursuit is rarely successful. I once caught a dragonfly (*Libellula*) with one of these butterflies in its mouth, which it had just captured; and both specimens are in my possession.

2. *Papilio Thersites*. This was always a rare insect. Now and then I caught a momentary glance of its broad yellow-disked wings, as it dashed along over the tops of the trees, particularly at Sabito; but I never captured it myself. In June several specimens were taken for me at Content. They flew high, about the summits of some trees by the road-side, in company with *P. Cresphontes*, so as to induce the suspicion in my friend that these were the sexes of one species.

3. *Papilio Cresphontes*. At all seasons this butterfly occurs in the lowlands, but sparingly. In the months of May and June it is somewhat less scarce than at other times. It is a lofty and a rapid flier, sailing along with little fanning motion of its wings, yet with much power and fleetness. It does not course along the edges of woods and road-sides, but now and then darts suddenly out of the forest or densely-wooded morass, and, appearing but a moment, dashes again among the trees, or soars away above their summits. In June, several at a time were frequently to be seen playing about the trees just above Content, often coming down to suck with quivering wings at the yellow blossoms of a patch

of *Cassia* that occupies a corner of the road. Here they were easily caught.

4. *Papilio Acamas*. On three occasions only did a specimen of this fine insect come into my hands, one of which was much weather-beaten; the others were in good condition. All were taken at Sabito. It flies high, alighting occasionally on projecting twigs, twenty or thirty feet above the ground.

5. *Papilio Pelaus*. This species is not uncommon, from April to September, and is widely spread, being found in most localities that I have examined, except the wooded summit of Bluefields Peak. Its ordinary flight is low, irregular, and not very rapid; it dances along from bush to bush, and from flower to flower, rifling them as it goes; but, if pursued, its power of wing is sufficient to carry it quickly out of reach. Yet, from its low haunt and its fondness for flowers, it is not a difficult butterfly to capture with the net. *Pelaus*, when sucking a flower, resting on a leaf, vibrates strongly its half-erected wings in a peculiar way, so as to be recognised almost as far as it can be seen.

6. *Papilio Polydamas*. Rather common at certain times and places. In May, on the road cut through the tall forest, between Shrewsbury and Content, I observed it somewhat numerous, flitting slowly over the low herbage, frequently alighting and allowing itself to be approached, so as even to be captured with the fingers. About the middle of June it was no less numerous at Belmont, manifesting the same predilection for the rank herbage of the road-sides. The species occurred not unfrequently also at Sabito, and along the road leading to Savanna le mer, and was confined to no particular season.

7. *Pieris Monuste*. Common in most situations, especially during the earlier months of the year.

8. *Pieris*, sp. nov. near *Josephina* (no. 114 of Doub. and Hewits. Diurn. Lep.). This rather large species was sufficiently common in the lowlands during the winter and spring. I met with it on the heavy sand of Alligator Pond in December, and afterwards somewhat numerous at Sabito and at the Hampstead Road.

9. *Pieris Margarita*. I did not meet with this till the latter part of March, when we obtained several specimens from Bluefields Mountain. It also occurred at Sabito and other lowland localities. Sabito in March and April, and the Hampstead Road in June are the great resorts of the *Pieridæ*: they commonly fly low, coursing along the bushes and herbage by the sides of roads, but frequently mount to the summits of the lower trees, and play around them, when in profuse blossom, frequently alighting in considerable numbers to suck. I have observed this habit much more on the mountains than in the lowlands.

10. *Callidryas Eubule*. Abundant at all times and in most situations, particularly in open pastures and ruinates.

11. *Callidryas Neleis*. This handsome species I did not meet with in 1845 till near the end of June, when it occurred on the Hampstead Road; a few specimens I took afterwards in the same locality, but it continued very scarce until the following April; about the middle of which month it suddenly became very abundant between Sabito Bottom and Cave, being for some weeks the most common species of butterfly to be seen. Its habits are much the same as those of the larger *Pieridæ* generally; flitting along the low bushes that fringe the road-sides with an unsteady but somewhat rapid flight, frequently alighting on flowers, and now and then retracing its course. In June it was similarly abundant on the Hampstead Road and around Content; and on my arrival at Kingston in July, on my way to England, this was found to be the most numerous species in that locality. It would be interesting to know if these alternations of abundance and scarcity are periodical.

12. *Gonepteryx Lyside*. Very rare: a single specimen or two occurred in December and January in the vicinity of Bluefields.

13. *Terias Elathea*.

14. *Terias Euterpe*.

15. *Terias Dina*.

16. *Terias Hyona*.

17. *Terias* (sp. nov.). These five species of *Terias* are common at most periods of the year: in spring they accompany the *Pierides* and *Callidryas Neleis* in their dancing flight along the roadside bushes; more particularly *Dina* and *Hyona*. I may remark of all these, as well as of the genera just named, that in a road they do not hover about or play backward and forward as some butterflies do, but pursue the course of the road, one way or the other, and that, notwithstanding the occasional interruptions of alighting, with pretty constant regularity, mostly keeping to that side of the road on which each may happen to be. I think I have remarked that most go the same way, though without any association. Occasionally one may be observed to return upon its course; but in such case it commonly pursues the new direction with the same regularity until out of sight.

But the more proper and peculiar resorts of the *Teriades* are large open plains, old pastures and guinea-grass pieces, especially the former two, which are generally overrun with herbaceous weeds, as the *Asclepiadæ*, various species of *Cassia* and *Papilionaceæ*. The smaller kinds in particular are very abundant in such situations, as *Elathea* and *Euterpe*, and the delicate little white one with narrowly black-edged wings, which appears unde-

scribed. Here they flit to and fro without any regularity, a few inches above the ground or herbage, alighting every instant.

The habit which the yellow *Pieridæ* have of resorting in numbers to the margin of water is common to the Jamaican species as well as their fellows in other parts of the world. During the rainy season, when the afternoon showers fill the hollows of the highways with broad but shallow pools, which the intense morning sun either wholly or in part dries up, one may see towards the middle of the day, each little patch of slushy mud surrounded by a yellow fringe, composed of a multitude, truly surprising, of these butterflies, large and small, chiefly *Callidryas* and *Terias*, which sit on the very edge of the water, side by side, their wings erect and closed, and their long suckers protruded and busily extracting the moisture. For the most part a considerable number on the wing are hovering about the spot, some alighting and some rising every moment. If compelled to take to flight, which they do very reluctantly, the multitude of yellow wings that in a moment throng the surrounding air is quite astonishing, and forms a very pleasing sight.

18. *Danais Berenice* var.? Very common in company with the *Teriades* just mentioned, over large open pastures, such as that of Robin's River in particular; where in the month of March great numbers may be seen either resting on the blossoms of the common Red-head (*Asclepias curassavica*) and other *Asclepiadæ*, or heavily flying to and fro in pairs, united in sexual copula. It has not the lofty and powerful flight of *D. Archippus*, but hovers over the low pasture-herbage, with so little power of wing, that it is caught without the slightest trouble, and may be very readily taken with the fingers.

19. *Danais Cleothesa*. This handsomely-marked species occurred at intervals throughout the year, but cannot be considered other than rare. It affects road-sides and openings in the woods rather than pastures, and mountain-sides of moderate elevation rather than the lowlands; in both of which particulars it differs from *D. Berenice*.

20. *Danais Archippus*. This I found still more rare than the preceding; a very few specimens only were seen by me, and those, though at widely separated intervals of time, only (if I remember rightly) in one locality; that part of the road to Savanna le mer which runs through Paradise morass, very near the dwelling-house of the estate. It flew low, about the logwood hedges; but there are no trees near, or it would probably have towered above them.

[To be continued.]